

Justipen Exit Report - Nicolas Schunck

I spent 5 days between July, 21th 2008 and July, 25th 2008 in Hokkaido for a joint Hokudai-TORIJIN-JUSTIPEN-EFES workshop and JUSTIPEN-EFES-Hokudai-UNEDF meeting. The program of the meeting covered many exciting aspects of contemporary nuclear physics, from nuclear forces to the nuclear many-body problem to nuclear reactions. It provided a fantastic venue to discuss with prominent nuclear physicists from Japan and the USA. I particularly appreciated the broad scope of the meeting, which was not restricted to nuclear physics: several talks addressed problems in atomic or computational physics.

From a personal point of view, the meeting was particularly useful since it gave me the opportunity to discuss in detail the practical implementation of new pairing forces studied by H. Sagawa and M. Yamagami in our nuclear DFT codes at ORNL. Their work showed that a small iso-vector dependence of the pairing interaction could lead to substantial improvements in the reproduction of odd-even mass differences. Following the discussions that we had in Hokkaido, M. Stoitsov and I have implemented these new forces into our respective DFT codes.

I am also grateful to the organizers of the meeting for giving me the opportunity to present my work on the role of time-odd fields in odd nuclei. The title of the talk was “Towards the Spectroscopy of Odd Nuclei in Density Functional Theory” and prompted many interesting questions, in particular with respect to how these terms could be properly constrained. The fact that many of our Japanese colleagues present at the meeting had an interest in nuclear reactions and time-dependent processes (where time-odd fields are particularly relevant), or in applications of super-computing in nuclear physics contributed to stimulating discussions.

I would like to stress the exceptional hospitality of our Japanese hosts. The workshop was wonderfully organized, both from a scientific and practical point of view.